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ABSTRACT

**A NON-LINEAR DISPERSIVE TRANSMISSION LINE ASSEMBLY**

A non-linear dispersive transmission line assembly for producing high power radio frequency electrical signals includes a transmission line (6, 7) having a plurality of series connected inductors (8) each incorporating saturable magnetic material to provide non-linearity, a first array (11) of capacitors interconnecting outermost ends of immediately adjacent pairs of the inductors (8) and a second array (14) of capacitors interconnecting outermost ends of immediately adjacent pairs of the inductors, with the second array interconnection points being spaced by one inductor from the first array interconnection points. The assembly also includes means for applying a first magnetic field to the transmission line (6,7) in a direction substantially perpendicular to the direction of a second magnetic field produced in the transmission line by the application thereto of a high voltage input pulse which propagates through the transmission line to form an output high power radio frequency electrical signal.

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